

January 28, 1956

Dear Francois:

I thought I should confirm to you, if you were not already well aware of it, that the two Hfr's (Hayes' and Luca's) are quite distinct in the segregation ratios of their crosses, and this doubtless accounts for many of the discrepancies in our experimental findings (e.g., that Esther could find no important effect of Lp polarity on the Gal segregation ratio in $F^+ \times F^-$ and Hfr $\times F^-$ crosses, contrary to your results with syngamic induction.)

One reason that we were so confused about this is that we had received two cultures as Hfr from Hayes, quite a while ago. What we call W-2323 was the original M-S^r Hfr; W2324 was a ~~parent~~ B₁-S^s Hfr that he isolated from a cross of the first. At any rate, our stock of W2323 had evidently reverted almost completely to a more ~~in~~ or less typical F⁺ (infective for F, and not extremely fertile), and we therefore neglected to study W2324 very closely. This too has proved to be somewhat revertible to F⁺, on long storage on nutrient agar, but we could re-isolate a suitable Hfr from it, which is doubtless equivalent to your Hfr stock. You may recall that Cavalli's Hfr (=W1895=M-Hfr) was also recorded as unstable to F⁺ at first, but it evidently has given a stable mutant subsequently.

Then a new student here (Alan Richter) quite fortuitously discovered two new Hfr mutants in TLB₁-S^r stocks. One of this is quite unstable, and frequently gives infective F⁺ reversions; the second is stable. Both of these resemble W-2324, rather than W-1896 and type F⁺'s, in segregation of Gal. On this basis we undertook to find more Hfr mutants of various types, and by a replica plating procedure have found a number of them which are being worked out now. They seem to differ widely in the segregation ratios for different markers.

We have no evidence yet whether the differences are due to different "Hfr loci", or to structural changes in the genetic background. The only indication at all favors the former (as part of the story) since Richter's Hfr's are not linked to Gal. Unfortunately, I cannot see any clearcut evidence that bears on our earlier discussion, as to the timing of the losses which are undoubtedly the basis of the different segregation behaviors. As soon as we have developed a suitable marker background for the new stocks, I will try to put them through a diploid analysis.

You did not answer all my questions in previous letters, but never mind.

Sincerely,

Joshua Lederberg

PS I will certainly try to see what we can do to attract you.